

Mumbai University

Question Paper

May - 2018

B.Sc.IT – SEMESTER: V

(IDOL – REVISED COURSE)

- **NETWORK SECURITY**
- **ASP.NET WITH C#**
- **SOFTWARE TESTING**
- **ADVANCED JAVA**
- **LINUX ADMINISTRATION**

KAMAL THAKUR

Mumbai University

May - 2018

B.Sc.IT: SEMESTER – V

(QUESTION PAPER)

[IDOL – Revised Course]

PAPER – I

**NETWORK
SECURITY**

Time: 3 Hours**Total Marks:** 100**N.B.:** (1) All Question are Compulsory.

(2) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.

(3) Answer To The Same Question Must Be Written Together.

(4) Number To The Right Indicates Marks.

(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

- (A) Describe OSI Security Architecture. (5)
- (B) What is Signature Scheme? List some of its examples. (5)
- (C) What are the groups of IP Security Document? (5)
- (D) Write a note on IKE (Internet Key Exchange) Protocol & SA (Security Association). (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What are the different modes of DES? Explain any one in detail (5)
- (B) What are Ciphers? What is the difference between "Transposition Cipher" and "Substitution Cipher"? (5)
- (C) Explain the working of DES. (5)
- (D) Explain p-1 Factoring Algorithm. (5)
- (E) Define Cryptosystem. Explain it with suitable diagram. (5)
- (F) Explain the working of Affine Cipher with an example. (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Write a short note on ElGamal Signature Scheme. (5)
- (B) What is the concept of Birthday Attack? Explain. (5)
- (C) Explain Digital Signature Standard. (5)
- (D) What is Signature Scheme? List some of its examples. (5)
- (E) What are the types of different Attack Models of Signature Scheme? (5)
- (F) Describe Diffie-Hellman Key Exchange Algorithm. (5)

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is active attack? Illustrate your explanations. (5)
- (B) Define Computer security and objectives of computer security. (5)
- (C) Explain Network security model in detail (5)
- (D) Explain the different types of attacks. (5)
- (E) Explain the following terms: (5)
- (i) Authentication
 - (ii) Access Control
 - (iii) Non-Repudiation
- (F) Explain "Replay Attack and Traffic Analysis" with suitable examples. (5)

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is Public Key Infrastructure? What are the required functionalities for that? (5)
- (B) Describe S/MIME with a neat diagram. (5)
- (C) Explain the working of Pretty Good Privacy. (5)
- (D) What are the various Web Security Protocols? (5)
- (E) Explain PKCS System. (5)
- (F) What four requirements were defined for Kerberos? (5)

TURN OVER

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Give examples of situations where IPSec is used? (5)
- (B) Explain the various participants in SET (Secure Electronic Transaction). (5)
- (C) What are the Services provided by IPSec? (5)
- (D) What is the difference between SSL Connection and SSL Session? (5)
- (E) What are the Business requirements for Secure Payment processing with Credit Cards over the Internet? (5)
- (F) What is the difference between Tunnel Mode and Transport Mode with respect to IPSec? Why does ESP include a Padding Field? (5)

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is Intrusion Detection System? Explain its benefits. (5)
 - (B) List and explain Four Techniques used to avoid Guessable Passwords. (5)
 - (C) Explain the Different Firewall Configurations. (5)
 - (D) Explain briefly the Classes of Intruders. (5)
 - (E) Write a short note on DDoS. (5)
 - (F) What is a Firewall? List its advantages and disadvantages. (5)
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B.Sc.IT: SEMESTER – V

(QUESTION PAPER)

[IDOL – Revised Course]

PAPER – II

ASP.NET

WITH

C#

Time: 3 Hours**Total Marks:** 100**N.B.:** (1) All Question are Compulsory.

(2) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.

(3) Answer To The Same Question Must Be Written Together.

(4) Number To The Right Indicates Marks.

(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

- (A) Differentiate between Structures and Classes. (5)
- (B) Explain Variable Sized Arrays with suitable example. (5)
- (C) Write a short note on .NET Framework. (5)
- (D) Are multiple Main() methods allowed in C#? Justify with an example. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the concept of Private and Shared Assembly. (5)
- (B) What is Exception Handling? Explain the Syntax of Exception Handling Code. What is the use of finally Block? (5)
- (C) Explain the different keywords used for Interrupting the Loops. (5)
- (D) Explain the concept of Boxing and Unboxing. (5)
- (E) Define Inheritance and Polymorphism. Explain how Multiple Inheritance is supported by classes in C#. (5)
- (F) Explain Write() and WriteLine() Methods with examples. (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is the use of Menus and Toolbars in Windows Application? Explain. (5)
- (B) What is Common DialogBox? Explain FontDialog with suitable example. (5)
- (C) What is ArrayList? State its methods and properties. (5)
- (D) Differentiate between ListBox and ComboBox Controls. (5)
- (E) Write a windows application to change the color of form into Red, Green and Blue upon clicking the respective buttons. [Hint: Drag three buttons and Label them. Write the necessary events.] (5)
- (F) State the Conventions that are used with events. (5)

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is Post-Back Event? Explain with suitable example. (5)
- (B) Explain .NET Framework Architecture in detail. (5)
- (C) Explain the work of Session State in ASP.NET. (5)
- (D) What is CSS? Explain Inline and Embedded CSS. (5)
- (E) Explain ViewState with suitable example. (5)
- (F) What is the difference between Themes and Skins in ASP.NET? (5)

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) How do we create a User Control in ASP.NET? (5)
- (B) When do we have to use TreeView Control in ASP.NET? (5)
- (C) Explain the following validation controls with example: (5)
- (i) CompareValidator
 - (ii) CustomValidator
 - (iii) RangeValidator
 - (iv) RegularExpressionValidator
 - (v) RequiredFieldValidator

TURN OVER

- (D) Explain Request and Response Objects of ASP.NET. (5)
- (E) What are the benefits of using a custom enumeration like Direction over built-in types like System.Byte or String? (5)
- (F) What are the different ways to redirect a user to another page programmatically? What's the difference between them? (5)

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain ADO.NET Object Model with help of suitable diagram. (5)
- (B) Write the necessary steps for connecting to the SQL Server Database. (5)
- (C) What is the difference between DataReader and DataAdapter? Explain. (5)
- (D) State the ways of deployment of website in ASP .NET. (5)
- (E) Write a note on Authorization and Impersonation. (5)
- (F) Explain any four Standard Query Operators in LINQ. (5)

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Brief the concept of JQuery. (5)
- (B) Write short note on ScriptManager and UpdatePanel Controls. (5)
- (C) Explain DOM Manipulation Methods in jQuery. (5)
- (D) Write a jQuery Application to give Fade In and Fade Out Effects. [Make necessary assumptions for the program.] (5)
- (E) Explain the difference between AJAX Page Processing and Traditional Page Processing. (5)
- (F) What is Web Service? Explain the basic steps to create a Web Service using ASP.NET with C#. (5)
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B.Sc.IT: SEMESTER – V

(QUESTION PAPER)

[IDOL – Revised Course]

PAPER – III

**SOFTWARE
TESTING**

Time: 3 Hours**Total Marks:** 100**N.B.:** (1) All Question are Compulsory.

(2) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.

(3) Answer To The Same Question Must Be Written Together.

(4) Number To The Right Indicates Marks.

(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

- (A) Compare Black Box, White Box and Grey Box Testing. (5)
- (B) Explain the issues in Object Oriented Testing. (5)
- (C) What is Cyclomatic Complexity? Explain with an example. (5)
- (D) State and explain the Levels of Testing. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is Quality? Explain any four components of Quality. (5)
- (B) State and explain different Quality Factors. (5)
- (C) Explain TQN in Cost Perspective. (5)
- (D) State the Methods or Techniques of Verification. Explain any two. (5)
- (E) Compare between Continuous and Continual Improvement in Testing. (5)
- (F) Explain Validation Workbench. (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is Equivalence Partitioning? Explain the types of Equivalence Class Testing. (5)
- (B) Write a note on State Transition Based Testing. (5)
- (C) Explain DD-Path with an example. (5)
- (D) What are the advantages of Functional Testing? (5)
- (E) What is Retrospection? Explain with reference to Functional Testing. (5)
- (F) A rectangle program accepts four integers as lengths for four sides of length from 1 to 100, inclusively. The output of the program is to determine whether the inputted numbers can form a rectangle, square or neither of these. (5)
 - (i) Create a decision table for the above problem with any five rules.
 - (ii) Provide a test case for each given rule.

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is Data Flow Testing? Explain with an example. (5)
- (B) What is Program Graph? Explain the terminologies used to Construct Program Graph. (5)
- (C) What is Path Testing? Explain with an example. (5)
- (D) Write a note on Du Path Test Coverage Metrics. (5)
- (E) Write a note on Metric Based Testing. (5)
- (F) What are the advantages and disadvantages of Structural Testing? (5)

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is integration Testing? Give its advantages. (5)
- (B) Write a note on Acceptance Testing. (5)
- (C) Explain the advantages and disadvantages of Bottom Up Approach. (5)
- (D) Explain the significance of Integration Testing. (5)
- (E) Enumerate the objectives and benefits of Unit Testing. (5)
- (F) Explain Acceptance Testing in detail. (5)

TURN OVER

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is UML? Discuss UML Support for Object Oriented Integration Testing. (5)
- (B) What is the significance of performance testing? With reference to Object Oriented System Testing. (5)
- (C) Write a note on Object Oriented Integration Testing. (5)
- (D) How is Object Oriented Software Testing different from Conventional Testing? (5)
- (E) What is Class Testing? Discuss the issues related to class testing. (5)
- (F) Explain the various levels of Object Oriented Testing. (5)

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is the need for Test Process Improvement? (5)
 - (B) State the advantages and disadvantages of Qualitative Analysis. (5)
 - (C) Explain the guidelines for developing a Test Plan. (5)
 - (D) What is test Metrics? Discuss any 5 types of Test Metrics. (5)
 - (E) State the important guidelines for developing a Test Plan. (5)
 - (F) Define the term "Efforts" and explain the different types of Efforts. (5)
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B.Sc.IT: SEMESTER – V

(QUESTION PAPER)

[IDOL – Revised Course]

PAPER – IV

ADVANCED

JAVA

Time: 3 Hours

Total Marks: 100

- N.B.:** (1) All Question are Compulsory.
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 (3) Answer To The Same Question Must Be Written Together.
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Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

- (A) Difference between AWT and Swing. (5)
 (B) List the different ways of Session Tracking. Write Syntax for Adding Cookie file in Java. (5)
 (C) What are the various methods of Statement Interface in JDBC? (5)
 (D) What is Email? Explain the Anatomy of Email message. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain any three Event Classes with their respective Event Listeners. (5)
 (B) Write a program in Swings to accept the username and password from the user and display message in a Message Box "Valid user" if username and password is "admin" else "Invalid user". (5)
 (C) Explain Event Delegation Model with an example. (5)
 (D) Explain the various Text Components along with its constructors. (5)
 (E) Create a JTable as follows: (5)

Name	Address	Phone
Abc	Lmn	123
pqr	www	456

- (F) Write a java program to demonstrate JTree. (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain HttpServlet with its Constructors and Methods. (5)
 (B) Write a Servlet Application to accept a number from the user and display the square and cube of the number. (5)
 (C) List and explain any 3 interfaces in javax.servlet Package. (5)
 (D) Why servlet is preferred over CGI. (5)
 (E) Explain the life Cycle of Servlet. (5)
 (F) Write a program to demonstrate Session Tracking using HttpSession Interface. (5)

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the type 1 Driver used in JDBC. (5)
 (B) Explain the Scrollable and Updatable Resultsets in JDBC. (5)
 (C) List the four Object Scopes in JSP. Demonstrate any one with example. (5)
 (D) Write a JDBC program that inserts values in database using prepared statement through Keyboard Input. [TABLE NAME: Employee. FIELDS: Empid, Name, Dept, Designation] (5)
 (E) List and explain various Implicit Objects used in JSP. (5)
 (F) Write the syntax of various Tags used in JSP. (5)

TURN OVER

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Write a short note on MVC Architecture. (5)
(B) Explain the advantages of EJB. (5)
(C) Explain in detail the phases of JSF Life Cycle. (5)
(D) Explain the Structure of faces-config.xml File. (5)
(E) Write a Model and Navigation Rules to find the Simple Interest of a given Principal, Interest and terms. (5)
(in JSF)
(F) List and explain the various types of Beans. (5)

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the Structure of hibernate.cfg.xml. (5)
(B) Explain the importance of Mapping and show the creation of Mapping File Inhibernate Framework. (5)
(C) Write a short note on Interceptors in Struts. (5)
(D) Explain Hibernate Architecture. (5)
(E) What is Value Stack in Struts? State and explain the Execution Flow of Value Stack. (5)
(F) Explain in detail the Core Components of Struts Framework. (5)

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What are Naming and Directory Services? (5)
(B) Explain the different types of Mail Protocols. (5)
(C) Write a short note on following: (5)
• *Session in Java Mail.*
• *Authenticator.*
(D) Explain the Components of Web Service. (5)
(E) Write a short note on SOAP. (5)
(F) Write a short note on Java Mail API. (5)
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PAPER – V

LINUX

ADMINISTRATION

Time: 3 Hours**Total Marks:** 100

- N.B.:** (1) All Question are Compulsory.
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(6) Use of Non – Programmable Calculator is allowed.

Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

- (A) Explain the features of Linux in detail with different Linux Distribution. (5)
(B) List and explain different types of Domain Name Servers. (5)
(C) How can rc scripts be managed using chkconfig? Explain. (5)
(D) What is RAID? Explain different levels of RAID. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is GRUB loader? How does it differ from Linux Loader? (5)
(B) Explain the stages of Linux Boot Process. (5)
(C) Explain Bootstrapping in Linux. (5)
(D) What is RC Scripts? (5)
(E) Write a short note on ext3 File System. (5)
(F) What is partitioning of a Hard Disk? What are the different partitions to be created in Linux? What is Swap Partition? (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) State and explain any five files that deal with System Environmental Settings. (5)
(B) What are the files required to be changed when we setup a new system or move the system from one location to another? (5)
(C) Write a short note on IP Addressing. (5)
(D) How is DHCP Client Configured? Explain. (5)
(E) Short note on Subnetting. (5)
(F) What is NFS? Explain with example. (5)

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) How to install Samba Server in Linux? (5)
(B) What are the steps in Configuring Squid? (5)
(C) Explain the concept of Catching Proxy Server. (5)
(D) Write and explain the default NTP Configuration File. (5)
(E) What are the steps to Configure Linux Firewall Packages? (5)
(F) How can we optimize NFS? Explain. (5)

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Short note on DNS. (5)
(B) Explain the files required to configure DNS Server. (5)
(C) How can Anonymous uploads accounts be enabled vsftpd? Explain. (5)
(D) Explain the different ways to maintain Email Security on Linux. (5)
(E) State and explain any five SSL-Related Configuration Directives while running vsftpd over SSL. (5)
(F) Explain any five parameters of vsftpd.conf file. (5)

TURN OVER

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain Apache Web Server with its features. (5)
- (B) Explain Configuration of SSI on Apache with Script in detail (5)
- (C) Write the purpose of Global Configuration Directives of httpd.conf (5)
- (D) What is the searching and indexing system provide with Linux? Explain its features. (5)
- (E) What is RSS Feed? Explain the elements required in an RSS Feed. (5)
- (F) What are the Common Mailman Administrative Tasks? Explain. (5)

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain Useradd Command with any five options. (5)
 - (B) Why should we Upgrade or Customize Linux Kernel? (5)
 - (C) How can we improve the performance of Web Services on a Linux Server? Explain. (5)
 - (D) State and explain any Five rpm Command Line Options. (5)
 - (E) What is Sudo? What are its features? How does Sudo session work after the creation of Configuration File? (5)
 - (F) How can we optimize FTP services on a Linux Server? Explain. (5)
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